

Reflections about Parapsychology and the Philosophy of Science

Has Parapsychology Progressed As a Science to the Point Where Science Can Include Psi and Transpersonal Views In Its Hard Core?

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Abstract

This paper proposes to evaluate the relationship of scientific criteria to parapsychology. It is herein argued that the most effective ways for the discipline of parapsychology to progress, are: a) to face psi, firstly, as a conceptual problem; b) to combine several approaches containing psi in their essence; and c) to try to build a psi "hard core" through a theoretical approach to resolving and clarifying the problems raised. To understand psi it will be necessary to explore not only empirical problems, but especially such conceptual problems as mind, consciousness, and altered states. Only then can science in general and parapsychology in particular, progress. Furthermore, parapsychology needs to develop its own heuristics – that is, new scientific methodologies that will include the roles of the researcher and of consciousness itself. Based on the work of the philosophers of science Larry Laudan and Imre Lakatos, the current analysis proposes a "hard core" for psi studies. Based on Laudan's work especially, it is argued that the conceptual problems are more important than the empirical ones. A psi hard core may be studied in two complementary ways: using Lakatos' empirical and Laudan's theoretical approaches. The theoretical approach offers a greater chance to see and clarify psi as a problem and lead to an understanding of the metaphysics and ontologies behind it. For parapsychology to progress, it is necessary to establish a psi hard core of constructs, beliefs, and assumptions, less testable and more operational, where the problem of ascertaining effectiveness is what matters.

Key Words: parapsychology, psi phenomena, transpersonal psychology, philosophy of science, metaphysics of science, research tradition, research program

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Introduction

At the beginning of the second decade of the 21st century, psi phenomena seemed to alter

the way we understand the concepts of space, time, mind, and energy. These phenomena raise questions about the limits of reality and also appear to reflect on the relationships between parapsychology and the philosophy of science. Krippner (1997) considers that psi phenomena may not be understandable using standard linear, reductionistic research methods and that psi research may require more holistic approaches that lend themselves to describing psi as a complex system. If that were to happen, it might be possible to describe psi in terms of specific mechanisms.

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It means that psi may reflect the operations of an interactive, nonlinear, dynamic system. If so, chaos and complexity theories, as well as systems methodologies, are needed to study psi phenomena.

Today in science the prevailing metaphysics is based on physics. One of its pillars is the principle of strong objectivity (Goswami, 2003), which holds reality (from the Latin *res* or thing) to be independent from us. Psi suggests a role for subjectivity and consciousness, even in the so-called real world. Mariotti (2006) calls representationism the prevailing epistemological mark of our culture – that is, mind as a mirror of nature. Objectivity is privileged, and subjectivity is thrown away as something that can endanger scientific precision. According to Mariotti, the biggest epistemological problem in our culture is how to deal with the subjective and the qualitative.

Psi shows the possibility of another nature of reality. It means another ontology, from the Greek *ontos* (being) and *logo* (knowledge), with new conceptual assumptions regarding nature. Psi also suggests an enlarged understanding of the world and its essence (i.e., its metaphysics, from the Greek *meta* [beyond] and *physis* [nature]). Psi brings epistemological problems about the role of subjectivity and consciousness into the so-called real world. The standard limitation of reality is also reflected in the relationship of parapsychology and the philosophy of science. Bringing them together requires the development of new concepts that may include a transpersonal approach (i.e., research on non-ordinary states of consciousness, including hallucinogenic experiences and the mystical states of world religions).

Metaphysics provides the heuristics (from the Greek *εὐρίσκω*, *heurísko*, the same etiology as *eureka*, or discovery) guiding the formation of theories. Heuristics is part of epistemology and the scientific method. A heuristic procedure is defined as a method of approximation of solutions that does not follow a clear path, because it is based on intuition and on circumstances in order to generate new knowledge. Psi and its relationship to consciousness indicate that

the principle of strong objectivity is incomplete. This can lead, from a general perspective, to new factors in heuristic research such as the role of the researcher in determining the results of the research and the role of consciousness in investigations involving living beings.

During the 20th century, the impossibility of establishing a unified heuristics of science became clear. Of course, the development of any science occurs in uneven ways based on very different evolutions (as in theoretical changes, empirical results, or cultural changes). Nowadays, heuristic studies are mainly concentrated within each science. It can be said, for example, that there are heuristic aspects of biology, chemistry, and physics, just to mention the natural sciences. Why not talk about a heuristic aspect of parapsychology? Although parapsychology is highly interdisciplinary with other sciences, it has developed its own heuristics without fanfare, perhaps as a way to validate itself vis-à-vis other sciences.

Concepts that progressively have been incorporated into mainstream science, such as verification, confirmation (the higher the number of tests, the better the degree of confirmation of a theory), repetition, explication, demarcation, and falsification, are strongly present in the development of parapsychology. So far, however, it seems that they have not been enough to make parapsychology widely accepted in mainstream science.

In the last decades of the 20th century, two approaches to science were dominant: the Research Program of Lakatos (Lakatos and Musgrave, 1979) (with an empirical basis) and the Research Tradition of Laudan (1977) (with a theoretical basis). Laudan's and Lakatos' concepts can enlarge science, because they propose a solid hard core based on a set of theories of metaphysical assumptions. Using these two approaches, the scientific method may be broadened to involve ontologies that contain psi assumptions and transpersonal angles.

Radin (1997) makes a simple assumption of what science is, defining it as a well-accepted body of facts and a method of obtaining those facts, although individual scientists may disagree on the exact meaning

of “well-accepted facts and methods.” He places psi into two general categories. The first involves perceiving objects or events beyond the range of the ordinary senses, while the second considers psychic action on matter. It can be noted that Radin does not refer to conceptual problems. Other philosophers of science, such as Laudan, say that the major problems to be considered are indeed the conceptual ones. It is on these that parapsychologists must concentrate.

Problems in Parapsychology and Its Implicit Conceptual Aspects

What are the main problems in parapsychology? Does psi exist? Why is it so hard for parapsychological problems to be accepted in mainstream science? Some propositions of outstanding researchers aimed at answering these questions are presented below.

Caruso (2002) argues that parapsychology has inherited philosophical, religious, and scientific issues. According to him, the main ones are the following: the mind-body dichotomy; the physiology of perception and other brain functions such as thought and memory; individual differences; the question of how time reactions are developed in individuals; and the ethical positions of experimental investigators. Caruso notes that the majority of parapsychological knowledge is descriptive rather than explicative. Moreover, in today's parapsychological paradigm, there is little attention paid to the effect of psi phenomena on any neural processes of the central nervous system. On the other hand, some researchers, such as Roll and Persinger (1998), based on the neurophysiologic studies of Sean Harribance, suggests that extrasensory perception – ESP – is primarily a function of the right side of the brain.

Other researchers such as Kreiman (2003), whose works have a process-oriented approach, refer to paranormal cognition. They state that paranormal phenomena imply the existence of a mental aspect of nature, and that the telepathic, the clairvoyant, and the precognitive are present in the psyche of human beings. They think that parapsychology should ask the following questions, among others: How does ESP work? Which mechanism or dynamism

makes the unconscious come to consciousness? What favors ESP? What disturbs it? In what ways does ESP impel our behavior? How can ESP receptivity be measured?

Krippner (2006) considers that parapsychology is the disciplined study of interactions between organisms and other organisms, and between organisms and their environment, that seem to transcend mainstream science's understanding of time, space, and energy. He relates parapsychology to transpersonal psychology, indicating that the transpersonal states of mind/body can be understood in terms of chaos and complexity theory as self-organizing and self-creating (*autopoiesis*). He admits as alternatives to Western cause-and-effect thinking the approaches of Eastern philosophies such as the Buddhist, Vedic, and Taoist, as well as the cycles found in Native American traditions. Krippner believes that parapsychology and transpersonal psychology present world views that could supplement and enrich Western psychology and philosophy.

Biologist Rupert Sheldrake (2004) claims that there are signs indicating the existence of a seventh sense. He suggests that we adopt a broader point of view in which not only the human mind but also the animal mind leaves the body and projects itself towards the outer world. He believes that mental fields that extend themselves beyond the brain may help to explain telepathy. They seem to be extremely common in the animal kingdom, which makes it part of our biological nature as well. The sixth sense has already been found by biologists who have studied electric and magnetic fields in animals such as eels, sharks, and rays. Sheldrake defines the term “seventh sense” as expressing the idea of telepathy, including the sense of being stared at and premonitions. The seventh sense is in a category clearly different from the commonly known five senses and from the sixth sense already identified.

Teixeira (2000) advises that the first questions to be raised by the philosophy of mind are the following: Are mind and body the same? And, what is the nature of mental phenomena? He defines the mind/body problem as ontological. Is mind made of only

one substance? Or is it made of two different types of completely distinct substances with irreducible properties? Indeed, are there two substances, or just one? This is a long-standing ontological problem, dating back to Plato and his world of ideas.

All these problems are inherently conceptual. The current analysis is designed to verify if parapsychology, as a science, can work out its conceptual problems, such as mind and consciousness, in a way to earn inclusion in the context of mainstream science.

Scientific Criteria and Parapsychology

The most commonly used scientific criteria nowadays are verification, confirmation, repetition, explication, prediction, demarcation, and falsification. These criteria are related below to the progress of parapsychological research.

Verification, Confirmation, Explication, Prediction, and Parapsychology

Since Rhine, ways have been sought to “verify” and “confirm” the existence of psi. The Rhinean approach is termed “proof-oriented.” The typical experiments are through Zener cards and their variations. In the “process-oriented” approach, ways are sought to uncover how psi occurs and under what conditions. The typical experiment is the Ganzfeld procedure, but there are several other consciousness studies supported by random numeric generators and the meta-analyses of these experiments. The proof-oriented approach attempts systematically to check statistically if the presented results are significant. It also tries to replicate the results. This is the “reality” for parapsychologists today.

Dantas Lins Filgueira (2000) objects to replication as a scientific criterion. Based on chaos theory, he explains that, even if an experiment has worked in the past, it may not work in the future, due to slight variations that may or may not be perceived. Chaos theory brings, as a consequence, imprecision and an absence of replication of certain phenomena. It applies especially to psychokinetic phenomena, where it seems that mind can influence a moving object more easily than a stationary one. This

theory can be applied to parapsychological research with random systems, using dice or subatomic particles.

Parapsychology has favored a typically positivist approach. Positivism involves a scientific focus firmly based on empirical facts. It also includes a belief in the testability of theories. Facts have a huge weight. Positivism implies the idea of an external reality and the correspondence of reality to this theory. In sum, it means that this theory is a mirror of reality. If the theory is true, the revealed ontology is true. Most of the time parapsychology tries to demonstrate the principle of verification as a science, not to surpass it. Parapsychologists attempt, above all, to verify the existence of psi and to demonstrate to the scientific community that it exists. This holds true even in process-oriented research.

Bunge (2003) states that scientists ordinarily accept positivist dogmas, insisting that nothing matters but experiences themselves and the theories resulting from the experimental or observable data. He warns that those who attach themselves to this crude philosophy condemn themselves to gather data without knowing why and for what purpose. Is not that what happens to the critics of psi research?

The failures of the explicative and predictive aspects of psi elicit the strongest criticisms about parapsychological knowledge. Psi information, besides being inconstant, seems also to be stochastic, for it changes with time. Radin (1997) argues that psi may also react to the experimental situation itself, altering its characteristics because of the experiment. He notes that in the social and behavioral sciences it is virtually impossible to guarantee that an individual tested once will react in exactly the same way when tested later. When dealing with living organisms, we cannot expect strict stability of behavior over time.

The existing models in parapsychology are merely descriptive rather than explicative. For instance, the approach proposed by Borges and Caruso (1996), based on cybernetics, is a good example of a descriptive model. In this model, there are three circumstantial elements in psi: the psi agent (PA), the psi environment (PE), and the psi flux (PF). The psi function = {(PA),

(PE), (FP)} and is the result of the interactions among these elements. There is no explanation of how the process occurs.

The problem of prediction in parapsychology may not be its Achilles heel. The point is the usefulness of parapsychology in a technological context. Usefulness is a fundamental issue in Western technological society, though it is not a scientific criterion. Investments are made in research according to the usefulness it may bring about. The usefulness of parapsychology cannot yet be proven, despite the optimistic musings of Radin (1997) about a possible utility for psi diagnosis in such areas as health (e.g., Edgar Cayce), military and intelligence applications, crime detection, technology, and intuitive decision making in business.

Demarcation and Falsification, Relativism, and Parapsychology

Starting in the 1930s, Popper's (1985) theory of falsification gradually became the most decisive scientific criterion. It implies that a theory is a complex loop of decisions that involves risks. The more a theory forbids, the more it says. It is the creation of demarcation. Theories that were not refuted by tests continue in the form of conjectures, substituting induction for deduction. The theory is first formulated, and only then tested. It is a convention that demarcates science from non-science.

Parapsychology, with its etymology of *para* = aside (in this case, aside from psychology), has attempted to associate itself with this definition of science. It seems not to have its own object of study, but a borrowed one. The demarcation of psi phenomena as different from other sciences was a victory for parapsychology. The affiliation in 1969 of the Parapsychological Association with the American Association for the Advancement of Science reflects this advancement.

Popper's convention and its historical character were modified by the introduction of relativism. Some philosophers of science, such as Kuhn (1970) and Feyerabend (1993), based on the history of science, shifted the debate away from the field of logic, making new propositions. Also, parapsychologist Ian Stevenson (1999)

considered neither falsification nor prediction as essential scientific criteria; instead, he emphasized the publication of methodological rules and reports.

Kuhn's (1970) contribution was to show that science progresses in a revolutionary way, and scientists' work is molded by paradigms, or relative truths. Parapsychology has waited for a long time for somebody capable of presenting a revolutionary theory. Kuhn's proposition weakens Popper's falsification view, resting in the belief of scientific truth and a temporal methodological rules.

For Feyerabend (1993), the tenacity principle leads to the proliferation of theories and to the progress of science, as if the mere perception of facts and the interpretation of the significance of scientific concepts were conditioned by theory. Thus an increase in the number of theories results in a higher range of perceptions and significances. The advancement of science occurs when rules are put aside. Feyerabend's ideas can stimulate the debate about the progress of science. They particularly reflect the field of parapsychology, which has a wide variety of phenomena and anomalous situations, which may proliferate theories. From telepathy, clairvoyance, and micro-PK, there are plenty of anomalous situations such as out-of-body experiences (OBE), near-death experiences (NDEs), suggestive cases of reincarnation, apparitions, poltergeists, and others. They all raise speculations and hypotheses about the limits of the interactions of mind/mind, mind/body, and mind/environment.

The concept of paradigmatic revolution raised by Kuhn lifted expectations that parapsychology could turn revolutionary and be assured as a science. But these expectations were not met. The parapsychologists' search for a psi theory (still lacking today) is not methodologically adequate if based on Kuhn (1970) and Feyerabend (1993), who seem to deny rationality, supporting the choice of theories favoring cultural relativism with elements such as power, prestige, age, and propaganda (Feijó, 2003). All the named elements are far from happening in parapsychology as a

science. So, how can a revolution be expected to occur?

Psi research so far has not been revolutionary. Krippner (2004) indeed reaffirmed the same position as outlined in a previous paper presented with Holvelmann in 1986, namely, that until that moment parapsychology had not brought to light any evidence of a magnitude to deserve to be called revolutionary. Krippner (2007) expressed a skeptical position about the dissemination of parapsychological knowledge. He stated that these are the best of times and the worst of times for psi research. There are a lot of good books and research, but few have the necessary financial resources. Psi knowledge on the Internet is growing fast, at a speed that would have been unpredictable ten years ago. Subscriptions to “skeptical” magazines are doing well also, due to the fact that they are directing their efforts to counter anti-evolutionists and religious fundamentalists, among others. Krippner suggests that breakthroughs may come from other researchers than parapsychologists, which would be ironic.

A more optimistic position on the progress of parapsychology as a science is taken by Bauer (2007). He shows the proliferation of the discipline of parapsychology in the United Kingdom, where ten universities are offering courses on parapsychology within their psychology departments. Bauer proposes that the Rhinean paradigm of mind as a real force should be abandoned, and that quantum physics may provide enormous contributions to parapsychology as time goes on.

Metaphysical and Ontological Assumptions for the Understanding of Psi

Larry Laudan (1977) introduced the concept of Research Tradition – RT – and Imre Lakatos (1979) brought forward the concept of Research Program – RP. In these two concepts there is no unified theory, but rather a group of theories with common metaphysical and ontological assumptions. These assumptions, or hard core, constitute the central commitment of a world view. Both recommend an amplified metaphysics of science.

It is here proposed that these two concepts can enlarge the scientific approach to psi phenomena. It is entirely possible that the path to the affirmation of parapsychology as science will not come from the verification or confirmation of a psi theory, nor from the falsification of psi hypotheses or a paradigmatic revolution. The acceptance of psi as science must happen through an amplified metaphysics, where its hard core belongs to a system of beliefs and implicit, non-falsifiable, psi assumptions.

Lakatos' RP hypotheses are metaphysical – that is, they are not questioned. These hypotheses constitute its hard core, and they can only be taken all together. Lakatos defends that construct by organizing a belt of protection known as “auxiliary hypotheses” around its core. Thus, instead of asking if a hypothesis is true or false, Lakatos asks if the RP is progressive or degenerative. Empirically based, it rescues Popper's rationalism principle that was set aside by Kuhn's (1970) and Feyerabend's (1993) relativist approach. Lakatos also includes a historical interpretation, claiming that, instead of falsifying a theory, a temporal chain of theories should be examined to determine if it is progressive or degenerative. Aside from the individual theories, there is a structure connecting them to the same system of beliefs. It offers the paths for scientific research (the oriented heuristic) and the paths to avoid (the negative heuristic).

The rationality in Lakatos is not instantaneous; it develops slowly. Change in the research program is not a psychological process as happens in the change of paradigms. It is slow and gradual, not a methodological recommendation for science (Feijó, 2003). It shows what has happened to parapsychology since Rhine – that is, a slow evolution of methods and scientific acceptance.

Lakatos considers Popper's falsification naïve, because scientists do not change just because facts falsify a theory. On the contrary, they do not hesitate to invoke auxiliary hypotheses to save a theory. They do not see facts as refutations but as simple anomalies that do not require an immediate solution. Of course, not all changes in auxiliary hypotheses are acceptable. A

hypothesis is considered progressive if it explains apparent refutations and has the ability to produce new facts. If it does not explain, it is considered an *ad hoc* hypothesis. That is what is happening to parapsychology. Many psi manifestations or their correlates (telepathy, apparitions, poltergeist, out-of-body experiences or OBE, near-death experiences or NDEs, cases suggestive of reincarnation, etc.) have hypotheses for each case. This may explain why many psi anomalies are put aside, because they are not seen as refutations. They are considered *ad hoc*, or circumstantial, cases.

The RP approach, although it philosophically opens perspectives for parapsychology, is not based on conceptual problems. It is proposed herein that the alternative concepts brought forward by Laudan are more open to focusing on conceptual problems and defining science as a problem-solving activity. Because of its empirical basis, RP seems to be more adequate for PK phenomena and dealing with psi as a complex function, because paranormal phenomena cannot be “seen” by the so-called skeptics. Laudan proposes a theory of science whose aim is the resolution and clarification of problems. He believes that the most important debates in science are not about empirical problems but mainly about conceptual problems, which are non-empirical. This argument may be extended to parapsychology.

Laudan (1977) holds that conceptual problems have been largely ignored by historians and philosophers of science, even though they represent the most important debates in the field. Simply defining conceptual problems as non-empirical, he describes them as characteristic of theories and without an existence independent of the theories that inspire them. Thus, they do not have the limited autonomy that empirical problems, which are easier to illustrate than to define, sometimes possess. A classic example of a conceptual problem is reflected in the argument of Berkeley and Leibniz against the idea of action-at-a-distance as proposed by Newton. A parapsychological example might be that the human mind is by nature one in which the telepathic, the clairvoyant, and the precognitive are present.

Laudan's (1977) view of science as a problem-solving system has more hope of capturing what is most characteristic about science than any alternative framework. He argues that, if we take seriously the doctrine that the aim of science (in all its various manifestations) is the resolution or clarification of problems, then we see a different picture of the historical evolution and cognitive evaluation of science. For Laudan there does not seem to have been any such thing as a “normal science.” According to Feijó (2003), the major advantage of defining science as a problem-solving activity is that this definition makes possible a rational reconstruction of science, allowing non-empirical or conceptual factors to direct the investigation.

The advantage of Laudan's propositions for psi research is to bring assumptions – for instance, that mind can directly influence matter – into a verifiable context, standing at a distance from philosophical questions and focusing instead on the resolution of problems. Laudan's (1977) approach questions the nature of different types of problems. What makes one problem more important than another? Which criteria determine if the solution proposed is adequate? What is the relation of nonscientific problems to scientific ones? Why does science progress and how is it actually carried out? Laudan questions confirmation and falsification as scientific criteria, proposing that rationality (an atemporal concept) and progressiveness are closely linked. He questions the positivist inheritance of science as the search for truth (convention and method) and epistemological realism. He rejects irrationalism and extreme relativism. For Laudan (1977), it is the solution that allows us to recognize the problem as genuine in the first place. For this reason, it is not always clear at the start if an apparent problem is really an empirical problem, i.e., whether there is any natural phenomenon to explain at all. He gives the example of extra-sensory perception. According to Laudan, most scientists claim to be uncertain that there is any evidence of ESP that needs theoretical explication.

The RT proposed by Laudan brings with it a set of directions for the

development of specific theories, as well a general ontology of nature and a general problem-solving method. Parapsychology never stops bringing up such problems as telepathy, clairvoyance, or micro-PK, just to mention those investigated in laboratory situations. But what is the ontology behind them?

The RT delimits, by its methodology and ontology, the types of theories that can be developed in its domain. Individual theories bring predictions and can be tested. RT is not predictive and it does not solve specific problems. It is also not explicative nor is it tested directly. RT is fundamentally normative and metaphysical. It provides the tools for the solution of problems, defining them and ascertaining their importance.

Laudan (1977) considers that a fact becomes an empirical problem only when someone decides it is interesting and important enough to deserve explanation. Early societies, for example, knew that certain drugs could produce hallucinations. But it is only relatively recently that this has become a recognized problem for physiological theories. Unsolved problems generally count as genuine only after they have been solved. Until then, they are ordinarily considered to be "potential" problems rather than actual ones, as with the Brownian motion of the comets during the Middle Ages. Scientists generally do not consider matters of truth and falsity when determining whether a theory does or does not solve a particular empirical problem.

These considerations, brought up by Laudan, may well be useful when directed to parapsychology. It turns us now to the core of the question of why parapsychology does not seem to have progressed as a science.

A Proposition for a Psi Hard Core – How the Metaphysics and Ontology of Science May Be Altered

It is hereby proposed, based on a hard core of constructs and assumptions regarding psi, which it should be possible to build a RT or RP to clarify and answer the problems raised by psi. This proposed ontology of science is based on the approach used in information technologies. To establish a better

understanding of psi, a future paper will deal with high-level, domain, task, and application ontologies. For now, the table below is presented as a preliminary analysis, aimed at listing a hard core of psi assumptions and how the metaphysics and ontology of science may be altered.

The proposed psi hard core may be studied in two complementary ways. It may, in fact, be demonstrated that both Laudan's and Lakatos' approaches can be applied to parapsychology through a hard core of assumptions for psi. It is plausible; however, that Laudan's conceptual approach is better suited to interpret this psi hard core than the empirical approach that constitutes Lakatos' hard core. The latter never changes; it does not allow for the revision of the core ontology of its world view or paradigm, its methodology, or its axiology. It does seem to recognize that psi can be supported by different types of evidence.

On the other hand, Laudan's RT admits some movement of ideas in and out. Laudan, whose work was done after Lakatos', develops the concept of acceptance and *pursuit*. Acceptance is close to belief – that is, treating the information being considered as true. In pursuit, the scientist explores an idea for reasons other than confidence in its probable truth. It can, indeed, be rational to pursue an idea that one does not fundamentally accept, as, even though the idea is not likely to be true, it may still be worth investigating. This pursuit of ideas for their own sake is more suited to exploring uncommon problems such as those presented by psi.

Laudan himself (1984) proposed a hierarchical structure of scientific debate, finding mixed results: there do seem to be circumstances where both factual and methodological disagreements can be brought to a rational resolution by seeking shared assumptions at a higher level. That is what has been presented here, namely: a higher level of metaphysical and ontological assumptions for psi problems. The following table summarizes the possibilities and difficulties of Lakatos' and Laudan's approaches towards the understanding of psi.

Table 1. Proposition for a Psi hard core

Hard core/ Approach (group of theories and assumptions that show evidence of psi)	Enlarged Metaphysics	Altered Ontology	Problem
Biological	The existence of a seventh biological sense (Sheldrake, 2004)	Psi as one of the integrating levels of a living system	Telepathy , clairvoyance, the sensation of being observed, and the identification of associated fields
Cultural	Interconnection of human beings with each other	Psi as belonging to human kind	Telepathy, clairvoyance, PK, transpersonal experiences.
Transpersonal	Interconnection and entanglement of human beings among each other and Nature (Krippner, 2006)	Human psyche is, by its nature, a mind where the telepathic, the clairvoyant and the precognitive are present (Kreiman, 2003)	Telepathy, clairvoyance, PK, transpersonal experiences
Psychological	Interconnection and entanglement of human beings with each other and nature (Krippner, 2006)	Human psyche is, by its nature, a mind where the telepathic, the clairvoyant, and the precognitive are present (Kreiman, 2003)	Out-of-body experiences (OBE), near-death experiences (NDE), Psi-related experiences, anomalous healing experiences (Cardeña, Lynn, and Krippner, 2000)
Phenomenological	Interconnection and entanglement of human beings with each other and nature (Krippner, 2006)	Human psyche is, by its nature, a mind where the telepathic, the clairvoyant, and the precognitive are present (Kreiman, 2003)	Building of psychological markers for psi, such as absorption, dissociation, and hypnotizability.
Neurophysiologic	The Ancestral Mind (part of the human mind related to reptilian and mammalian brains) gives support to psi experience	Human psyche is, by its nature, a mind where the telepathic, the clairvoyant, and the precognitive are present (Kreiman, 2003)	Telepathy, clairvoyance, PK, transpersonal experiences
Technological	Existence of psi anomalies that can be measured and/or induced	Human psyche is, by its nature, a mind where the telepathic, the clairvoyant, and the precognitive are present (Kreiman, 2003)	Measurement with the usage of imaging techniques and electronic devices, for instance, measuring and inducing electromagnetic fields, or generating stationary acoustic waves to mediate psi phenomena
Physics	Ways to support psi connections (transcending the ordinary limits of space and time) (Radin, 2006)	Entangled minds (Radin, 2006)	Telepathy, clairvoyance, precognition, and PK
Mathematical	Existence of abstract mind structures, based on mathematical concepts and structures, including also a General Topology (Dantas Lins Filgueira, 2000)	Human psyche is, by its nature, a mind where the telepathic, the clairvoyant, and the precognitive are present (Kreiman, 2003)	Telepathy, clairvoyance, precognition, and PK
Psychobiophysics	Mind can influence matter through biophotons – very weak visual light emissions from living systems (Kokub, 2008)	Human psyche is, by its nature, a mind that can influence matter	Psi (bioPK) abilities for cure expressed through quantitative measurement of biophotons

Table 2. Empirical and Theoretical Approaches – Lakatos and Laudan –Two Complementary Ways to Study a Psi Hard Core

HARD CORE					
	(group of theories and assumptions that show evidence of psi)	APPROACH	FOCUS OF THE APPROACH	PSI DIFICULTY	POSSIBILITY OF UNDERSTANDING PSI
RESEARCH PROGRAM (LAKATOS)	Biological	EMPIRICAL	Progressive or degenerative theories (the accumulation of evidence for accepting or rejecting the entire hard core)	Psi is not seen as a problem	The empirical approach probably will not take psi into account. If it does, it will consider psi as a complex function depending on environmental variables.
	Cultural				
	Transpersonal				
	Psychological				
	Phenomenological				
RESEARCH TRADITION (LAUDAN)	Neurophysiologic	THEORETICAL	Conceptual Problems are more important than the empirical ones. What is important is the clarification and resolution of problems. The hard core permits some movement of ideas in and out	Psi is seen as a problem but is not clarified	Due to its theoretical approach, the understanding of the metaphysics and ontologies behind psi is probable
	Technological				
	Physics				
	Mathematical				
	Psychobiophysics				

Reflections and Discussion

Psi can be understood only through an integrated approach based on several different sciences. In this way, it will be possible to build a hard core of constructs whose basic assumptions take psi into account in an expanded metaphysics and ontology that contain psi in its essence. The aim should be the resolution and clarification of psi problems. It should be clear that it is the conceptual problems that are to be considered by parapsychology, not just the empirical problems that have been emphasized to date. The dominant metaphysics in the 20th and at the beginning of the 21st centuries has been physically oriented, as in the “brick” of reality, called “upward causation,” it means that chemistry is nothing but physics, biology is nothing but chemistry, psychology is nothing but biology, and so on. The causation that starts from fundamental physics leads at the end to biology, life, and consciousness. In the 21st century it is likely that the best approach will be biological. Despite the high acceleration of information technologies (at heart, a quantitative paradigm) in such forms as artificial intelligence, robotics, and telecommunications, the prevailing view will focus on the relationship between living

beings and the environment. Led by such biological consequences as climate change, issues related to the disposal of worldwide garbage and waste, food shortages, and other matters that threaten the survival of living beings across the planet, the prevailing view seems to be biological. It also includes the development and use of DNA information and advances in the knowledge of neurophysiologic processes, among others.

If biology includes the existence of a seventh sense in the mode proposed by Sheldrake, it may begin to explain the interaction at a distance among members of the same species and other species and the environment, especially the aspects concerning the survival of individuals and the species themselves. Transpersonal studies and psi are closer to a world where the dominant metaphysics is biological, with ontologies that allow for the entangled minds of living beings, and the human psyche is admitted to be, by its nature, a mind where the telepathic, the clairvoyant, and the precognitive are present.

The great difficulty in psi research will not be only in terms of its verification, confirmation, testability, prediction, and falsification, but mainly in terms of the lack

of an established set of unified beliefs on which the research can be based; this situation rather resembles the Research Tradition. For the progress of parapsychology, it is proposed that we accept psi as a conceptual problem (Castro, 2009) and admit the following propositions:

- a) That we require, as a hard core, an expanded view of human consciousness, for psi seems to contradict mental functioning based only on the brain structure and its correlate electrochemical activities.
- b) That we accept psi as an empirical anomaly, on the basis of both phenomenological and laboratory research.
- c) That we recognize that psi raises essential problems about the nature of reality, such as the acquisition of information without the usual limitations of space, time, and energy, and that the accepted views of the nature of perception, memory, cognition, and communication are incomplete.

For parapsychology to progress as a science, researchers will have to use a hard core of assumptions and constructs, a set of beliefs that is more general and less testable than might be desired, in order to create its own Research Tradition, no longer focused only on empirical problems as in the past. If parapsychologists themselves do not establish a hard core of psi research, the discipline will progress very little. Continuing a discussion among parapsychologists as to whether psi exists or not seems fruitless at best.

This paper has tried to demonstrate that the greatest difficulties are not the empirical ones. They are theoretical and conceptual. The role of parapsychologists should be to propagate plausible theories, as recommended by Feyerabend (1993). It is a huge and stimulating task, because parapsychology has a multiplicity of interactions and is extensively interdisciplinary.

If parapsychologists want to create their own RT, they will need to become less committed to the traditions of other sciences. For instance, psychoanalysis (although its non-scientific character has developed in Brazil and in other parts of Latin America) has created its own self-

reference, thereby liberating itself from dependency on any branch of science that used to discredit it, and continues to expand its followers.

The proposal here (Castro, 2006) is to concentrate on the complementary use of researches and methodologies for a unified understanding of psi as a construct interacting with:

- The biological model (identification of such fields as those specified by Sheldrake),
- The cultural model (culture as a permeable element),
- The contributions of transpersonal studies admitting the interconnection and entanglement of human beings with each other,
- The psychological model (obtaining psychological markers for psi agents),
- The understanding of hypnosis (and the use of induction techniques, repeatable and manipulable),
- The phenomenological approach (the experience from the viewpoint of those experiencing it),
- The technological approach (for anomalous registration – measurements and mediations – to facilitate or modulate the occurrence, such as by measurement or induction of electromagnetic fields, the generation of stationary acoustic waves, among others),
- The neurophysiologic approach to fulfilling certain needs (real, perceived or psychological) stated by Braude (1999) as examples to be included,
- The physics approach and ways to support psi connections (transcending the ordinary limits of space and time),
- The mathematical approach (incorporating abstract mind structures, based on mathematical concepts and structures, including a general topology), and
- The psychobiophysics approach (mind influencing matter through biophotons).

In summary, the most effective way for parapsychology to progress, thereby leading to a better understanding of human beings, is to face psi first as a conceptual problem. Including psi in the essence of several

different approaches is the second step. The third is to try to build a psi hard core through

a theoretical approach for the resolution and clarification of the problems raised.

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